REMARKS

With entry of the foregoing amendment, Claims 1- 32 are now in the application.

While the applicant responds to the Examiner's comments within the Final Office Action mailed on December 5, 2003, a more detailed description of the McGowan et al. (USP 5,937,345) reference and new arguments are provided to clarify the Applicant's position regarding patentability of Claims 1-32.

Claims 1-10 were rejected under 35 U.S.C. 102(e) as being anticipated by McGowan et al. The rejections are respectfully traversed and reconsideration is requested.

The present invention applies to a Global System for Mobile (GSM) communication system shown in Fig. 1 of the patent application as originally filed. Like many other communications networks, the communications within a GSM system can be characterized using a protocol stack model such as the Open Systems Interconnect (OSI) layered protocol. The GSM system primarily defines the messaging and functionalities of three layers within the OSI model including the physical, data link, and network layer. The network layer is further composed of three functional layers performing distinct tasks: a Connection Management (CM) layer, a Mobility Management (MM) layer, and a Radio Resource management (RR) layer. The CM functional layer is divided into a Call Control (CC), Supplementary Services (SS), and Short Message Service (SMS) sublayers.

Network layer messages traveling in either the uplink or downlink directions must pass through each of the functional layers because higher layer messages are often encapsulated within lower layer headers (and tails such as checksums) like the layers of an onion. As a message is passed from the physical layer up to the network layer, each OSI or functional layer header is typically stripped or peeled off the data payload like the layer of an onion. Lower layers may also perform other functions such as re-assembling fragmented data or performing error correction of data prior to its presentation to a higher layer. Thus, programs residing within higher layers such as the network layer are generally not required to be aware of the functional requirements of the lower layers. The data, however, typically follows a serial path sequentially through each layer to ensure that the data is presented in the proper format within each layer as it traverses up or down the protocol stack.

The delay caused by passing a message through each of the OSI layers, and more particularly, the network functional layers, may result in delays in setting up and placing calls. In addition, the need to separately implement the functional layers in different physical or even logical machines requires that message must often be routed through several layers to reach their destination in the system.

The present invention addresses the delay problem in an uplink message by first examining the message directly to determine its destination functional layer and then routing that message to the respective functional layer. In one embodiment, as shown in Fig. 3 of the patent application, a multiplexer is used to facilitate the examination and routing of network layer messages from the data link layer to a particular network functional layer. For a downlink message, the message may be passed directly from a functional layer to the data link layer of the GSM system.

The McGowan et al. patent describes a call intercept system (CIS) residing at a unique call intercept layer with probes into each network layer (col. 5, lines 47-48). The CIS only monitors (i.e., captures a copy of) the messaging that is otherwise routed normally through each functional layer. According to McGowan, "Each control point monitors messages received at the component or layer associated with the control point" (col. 2, lines 36-38). The copy is sent to a law enforcement monitoring center for analysis and does not enable further network actions. Furthermore, the CIS does not route messages back to the RR, MM, or CM layers (according to Claim 1 of the present invention). The probes are analogous to traditional passive wiretaps wherein the interceptor (e.g., law enforcement) listens in on the conversation, but does not interfere with the normal operations of the communications system (Fig. 5). The CIS uses multiple control point (listening points) to enable the capture of call information that is unique to wireless networks such as hand-over information which may only be exchanged at one layer while the bearer traffic (e.g., voice) is intercepted at another layer (col. 5, line 64 to col. 6, line 5).

While McGowan et al. discloses a call intercept system that passively monitors a wireless communications network, the present invention, as claimed, performs active re-routing of messages from the data link layer to a designated network functional layer. While the purpose of McGowan et al. is to enable a more complete collection of call data in a wireless network, the

purpose of the present invention, as claimed, is to reduce possible latency in MS hand-over by bypassing certain protocol layers. It is also obvious to one of ordinary skill in the art that a passive call intercept system only captures a copy of the target voice or signaling data while allowing the targeted communications to proceed through the communications system normally. Otherwise, the purpose for the call intercept, i.e., to gather information from the target, is defeated.

Regarding Applicant's Claim 1, McGowan does not teach the routing of messages to the RR, MM, or CM functional layers. In fact, Fig. 5, Fig. 6, and Fig. 7 of McGowan et al. show that messages only travel from control points 402, 404, 406, 408, and 410 toward Call Interception 412. No messages are sent back from Call Interception 412 to the RR, MM, or CM functional layers. Figs. 5-7 provide further illustration that McGowan only discloses a passive call intercept system.

In the Response to Arguments of the Final Office Action, the Examiner disagreed with the Applicant's position that " a message still passes through each of the CM, RR and MM functional layers" while referring to Fig. 6 and col. 6, lines 29-53 of McGowan et al. Based on the above discussion, it appears that the Examiner has misinterpreted the meaning of Fig. 6 and col. 6, lines 29-53 of McGowan et al. While McGowan et al. states that the "control point 402 sends the handover message to call interception layer 412" (col. 6, lines 29-32), the "handover message" referred to is only a copy of the message because the CIS only "monitors" the targeted call (col. 3, lines 36-38). Otherwise, the CIS, as disclosed, would inhibit normal call operations and defeat its own purpose of allowing a call to normally occur while intercepting the information associated with the call. In order to allow the call to proceed normally, a message still passes through each of the CM, RR, and MM functional layers, i.e., "all activity from a mobile station ... flows through the various layers making up the signaling layer in MSC 400. (col. 5, lines 64-66).

The preceding discussion also applies to the Examiner's Response regarding Claim 5. Again, the CIS of McGowan et al. does not inhibit the normal system message flow through the various protocol layers.

Thus, Applicant respectfully submits that the rejection regarding Claims 1 and 5 under 35 U.S.C. 102(e) based on McGowan et al. should be withdrawn.

The Examiner has also rejected Claims 2-4 and 6-10 under 35 U.S.C. 102(e) as being anticipated by McGowan et al. Because Claims 2-4 and 6-10 are dependent on and are limited by allowable Claim 1 either directly or indirectly, the Applicant respectfully submits that the rejection of Claims 2-4 and 6-10 should be withdrawn, for the same reasons as stated above.

The applicant has also amended Claim 3 to remove a typographical error wherein "layer" was repeated twice in the claim.

New Claim 11 is a computer program product style claim that corresponds to the features of allowable Claim 1. It should therefore now be in condition for allowance.

New Claims 12-20 depend from allowable Claim 11 and therefore should be allowable.

New Claim 21 is an apparatus claim of the multiplexer shown in Figs. 3-4 and fully described in the present application. It should be allowable.

New Claim 22 is an apparatus claim of the multiplexer shown in Figs. 3-4 that corresponds to the features of allowable Claim 1. It should also be allowable.

New Claim 23 is a system claim corresponding to Figs. 3-4 and the features of allowable Claim 1. It should be allowable

New Claims 24-32 depend from allowable Claim 23. These claims also correspond, more or less, to the features set forth in the original dependent Claims 2-10. These claims should therefore be allowable.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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